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Learning disabilities are generally due to a variety of disorders, from the biological to the environmental. Unfortunately, today, the tendency exists to seize upon one such disorder and to investigate the learning disability concept in that narrow view only. Evidence, however, suggests that a multifactor approach should be used and that system concepts and models should be developed to understand learning disability as a multidimensional disorder. One problem with such an approach is the difficulty in effecting a commonality of effort among the many professional disciplines involved in the subject of learning disability. In short, it might be said that there are difficulties in (1) conceptualizing multidimensionality: (2) deciding on the approach to use; and (3) applying the multidimensional approach, once it is decided upon. On the basis of knowledge gained from an integrated systems approach used at the day care center at the University of Colorado Medical Center in Denver, it may be possible to create a coordinated plan to utilize the efforts of the various professional groups and to institute cross-communication between them, in order to establish the integrated approach necessary to the investigation and treatment of multidimensional learning disabilities. (WD)

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The Need for a Multi-dimensional Approach to Learning Disabilities[1]

A Multi-disciplinary Symposium on Dyslexis and Associated Learning Disabilities

Valparaiso University, May 25, 1968 G. E. Blom, M.D.

A historical development of our understanding of learning disabilities might be overviewed as proceeding from mystery and lack of concern to the concept of intelligent or dumb children and then to a variety of reasons and causes. These reasons and causes have developed from the findings and experiences of various sciences and professional disciplines motivated by the value which our society has placed on universal education for all children. This value in more recent years has been extended to equal educational opportunities for all children in all segments of our society. However, the variety of reasons and causes for learning disabilities which have emerged has tended to create segmentation in our understanding and approaches to such problems. While clearly there have been advances in our knowledge and methods, it is also appropriate that we consider improved models and practices in this field.

Four weeks ago I had the occasion to participate in an institute on the "perceptually handicapped child" and was reminded of a poem many of us heard in school as children--"The Blind Men and the Elephant" (Saxe). Let me read a shortened presentation of the poem since it can be used as a parable for the need of a multi-dimensional approach to learning disabilities.

It was six men of Hindostan
To learning much inclined,
Who went to see the elephant,
(Though all of them were blind):
That each by observation
Might satisfy his mind.

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The first approached the Elephant,
and happening to fall
Against his broad and sturdy side,
At once began to bawl:
"Bless me, it seems the Elephant
Is very like a wall".

I will condense the other verses:

The second, feeling his tusk
Thought he is like a spear

The third, happening to take the trunk,
Thought the Elephant is like a snake

The fourth, felt about the knee,
Thought he is very like a tree.

The fifth, chanced to touch the ear,
And thought the elephant is like a fan

The sixth, seizing on the swinging tail,
Cried the elephant is like a rope

The last verse goes as follows:

And so these men of Hindostan
Disputed loud and long,
Each in his own opinion
Exceedingly stiff and strong,
Though each was partly in the right
And all were in the wrong

Like the blind men the tendency exists to describe and understand a complex whole such as learning disabilities in terms of a part that is not entirely accurately perceived, or in terms of fragmenting parts, emphasizing one part in isolation from others. Unfortunately, the many professional disciplines including my own who have had an interest in learning disabilities have tended to act as blind men focusing on those parts of the whole containing their bias and offering explanations that may be simple and biased as well.

Learning disabilities can be defined as reading disturbances, difficulties in performing mathematical processes, underachievement (either in general or in specific subject areas), and behaviors which interfere with learning such as short attention span, low frustration tolerance, hyperactivity, inhibition, faulty perception, poor memory and others.

The tendency exists today to reduce these disabilities to 1) symptoms of personality disturbance, or 2) consequences of environmental experience including instructional methods or 3) developmental immaturity or 4) the resultant of neurophysiological patterns including constitutional equipment and faulty maturation or 5) the effects of faulty perceptual processes from whatever causes. In the author's experience there are relatively few cases of learning disability where the resolution of personality conflicts or the employment of a different educational method or the training of compensatory mechanisms alone has resulted in change. Where this did appear to be so, on further analysis, more than a single simple intervention was involved.

This reductionism of complexity is often the basis of various category classifications of learning disorders. Furthermore, it can influence the construction of theoretical models or concepts about learning disabilities. One example as illustration is the reflex arc model. This model views learning as involving processes of input, assimilation, and output and disabilities are conceptualized as disturbances primarily in input(s), assimilation(s), and output(s). This view sees processes as being relatively independent of each other rather than interacting with and influencing each other.

One can provide innumerable examples of oversimplified theoretical models, single explanations for complex behavior, the neglect of alternative explanations for findings, inaccurate conclusions from research that is poorly designed, limited sampling of behaviors on which generalizations are made and uncritical thinking in the application of remedial methods to problems. These types of errors and mistakes were the basis of a paper by Benjamin (1961) entitled "Knowledge, Confiction, and Ignorance." In a personal conversation, Benjamin told me that he often wanted to add the word "baloney" to the title.

To be sure reductionism is not evil or stupid in its intent. Its purpose has been to make a phenomenon more understandable, workable and approachable. Classifications and concepts are devised for these utilitarian purposes. However, when they no longer serve their original usefulness, then they need to be revised. In my opinion the growing accumulation of knowledge and experience with learning disabilities which time does not permit me to summarize, dictates that we view them as a multi-factor disorder and that we further develop system concepts and models to understand them and toapproach them. This is easier said than done for we can pay lip service to multi-dimensional understanding without practicing it. We can also continue to aggrandize and traditionalize our understanding and approaches within our professions and settings and resist change both deliberately and unwittingly.

To put a multi-dimension approach to learning disabilities into practice presents difficulties of no small dimension. A number of proverbs come to mind--in our country we say "too many cooks spoil the broth." In Russia the proverb goes "with seven nurses, the child goes blind," in Italy--"with too many roosters crowing, the sun never comes up."

If we grant that various professional disciplines--educators, education specialists, social workers, pediatricians, optometrists, psychiatrists, psychologists, neurologists, sociologists and others--have an important contribution to understanding children with learning disabilities; 1) how do we synthesize these many contributions? 2) how do we make decisions about the selection of approaches to use? and 3) how do we apply them simultaneously?

These three hows--of conceptualizing, decision making, and applying multi-dimensionality--are the interrelated themes of this presentation.

A conceptual approach that has proven useful to me in the partial resolution of the problems, dilemmas, and challenges previously mentioned is one of systems (theory). A system may be defined simply in an applied sense as a "complex unity of many, often diverse parts subjec to a common plan or serving a common purpose;" or from a theoretical viewpoint "the structure or whole formed by the essential principles or facts of a science or branch of knowledge or thought: an organized or methodically arranged set of ideas, theories, or speculations" (Webster's Unabridged Dictionary, 1961).

My interest in a systems approach to mental health and education problems stems from my professional work as Director of the Day Care Center at the University of Colorado Medical Center in Denver. The Day Care Center is a psychoeducational facility for emotionally disturbed elementary school age children with academic and social problems usually manifested in the school situation. Our program integrates clinical and educational approaches utilizing a multi-discipline staff of mental health

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professionals, teachers, and pediatricians and further resources as necessary of a University Medical Center. The Day Care Center is also a laboratory school in special education affiliated with the School of Education on the main University campus in Boulder. Over the 5½ years of operation our staff has been interested in a number of issues which focus on elements within our system: classroom management, perceptual cognitive motor training, individualized academic programming, school-home discontinuities, operant conditioning procedures, therapeutic manipulations of the environment, standby (a procedure modified from Redl's life space interview), the use of psychoactive drugs, competence development, specificity in psychotherapeutic intervention with children and parents, and other elements. While our basic theoretical orientation to personality and personality development is an Erikson psychoanalytic one, we find ourselves integrating concepts of Robert White on competence, of Jean Piaget on cognitive development and of other theorists on cognitive styles, perceptual modes, operant principles, psychomotor development, family dynamics, etc. There are also the more empirical contributions of Cruickshank, Haring, Kirk, Frostig, Kounin, and others which have influenced our thinking and operations. If this sounds a bit overwhelming, it is at times! Although it is exciting and interesting. I would guess this is the price that one has to pay for multi-dimensionality and for a systems approach to complex problems.

I would not want to leave you with the impression that jillions of procedures are going on at our Center in a diverse helter-skelter way. There is a basic structure of a school day covering subject areas within an elementary school curriculum and there is regular biweekly or triweekly

psychotherapy of the child and weekly therapeutic sessions with their parents. Individual and group procedures are introduced into the structured periods of the day after team discussion and often group staff discussion. There are both formal and informal contacts to achieve this.

While our Center deals with an emotionally disturbed population, we hope that study and experimentation within a special education and treatment focus may offer contributions that can be applied to a variety of other educational and mental health settings. Given the advantages that the Day Care Center affords in its limited number of children and availability of multi-discipline staff, problems have emerged and continue to exist in a number of areas. These problems can be expected when a number of professional disciplines work together and have a multi-faceted broad view of the problems of handicapped children. To synthesize and integrate these contributions requires relationships among professionals that contain mutual respect, trust, tolerance of differing opinions, the ability to communicate, and some understanding of the methods and principles of other disciplines. Furthermore while each discipline has an investment and some expertness in a specialty area, we have to be able to be <u>generalists</u> too (though hopefully not generals!). It seems to me that my role as director of the Day Care Center is to be the generalist and represent that viewpoint to the staff with the expectation that other staff will share in it. This means for example that I can have an equal interest in the use of drugs to help manage behavior, in the psychological understanding of that behavior, and in the psychological meanings of the use of drugs to a child, his parents, and professional staff. When a child complains of abdominal pain and headache, I can think of

alternative explanations other than anxiety and tension in relation to a disturbing family situation--such as that he may have a virus infection, or that he may be experiencing frustration with academic tasks that are too difficult or that he may be avoiding what he is capable of doing.

Let me provide an illustrative case example of a nine-year-old boy, Larry, which has always presented the need for multi-dimensionality in approach. Larry was referred to the Center because of a marked skew and unevenness in his developmental abilities. While he had fantastic mathematical computation abilities, he was extremely awkward in movement and motor coordination. He could read adequately for his age and had excellent language skills but was socially isolated and inept with other children. Adults found him fascinating because of special abilities and unusual interests in accumulating statistical information, and map making. Larry was a kind of mental computer. From our initial evaluation we were concerned about the extent to which Larry already lived in his own inner world and would progressively increase that trend--i.e. his autistic tendencies. We also knew that Larry had hydrocephalus when he was 18 months old for which neurosurgical procedures were performed. There was current evidence of abnormal findings from neurological examinations, electroencephalogram and psychological testing which indicated that Larry had minimal brain damage. His developmental history was particularly striking in that the parents resisted the information and advice of many professionals that Larry was retarded, had fixed structural problems and the like. With unusual compensatory training efforts of their own the parents were able to encourage a development along the lines described which had both its assets and liabilities. They of course had emphasized

those qualities of intellectualization, emotional control, and language which were highly valued to them, but at the same time they were concerned by his strangeness and other disabilities.

Our questions initially were: could we alter the skew in Larry's developmental profile?; how would the parents feel towards us and react to being confronted with his disabilities?; how could we dose our approach so that Larry could maintain some of his strengths?; how could we view Larry's strengths as defenses which served a type of adaptation and yet needed altering?; how much of Larry's behaviors were modifiable rather than fixed and structuralized?; how could we deal with Larry so that his unusualness would not be reinforced unwittingly?; how could we work towards normalizing behaviors without becoming overzealous and expecting too much?

It is now a year and a half later and while some of our questions are partially resolved, there are others that still remain. As anticipated the parents have had to work on their disappointment, anger and distrust of professionals both present and past. They were and are threatened by Larry's display of feelings and their feelings that have become more manifest as well. They found it difficult to shift their ways of relating to Larry which reinforced his intellectualization and emotional isolation. They have wondered many times if they should have agreed to his admission to the Center. As we worked with Larry certain disabilities became more obvious such as not tieing his shoes, his loud strident voice, his inability to cross the street because of difficulties in perceiving objects that were coming close and that were going away, and others. How many of these disabilities could one work on?; what priorities would one establish?;

how could one have a total child emphasis rather than fragmenting Larry in parts?

Our first priority was on socialization. Larry's therapist focused on the expression of feelings both positive and negative. As it turned out Larry through play revealed various aspects of his self-image--"bubble head" (a play theme character), a crazy genius, being damaged and vulnerable to further damage. A most corrective experience took place when Larry in a scuffle was hit on the face by another child and yelled in tension and excitement, "The blood did not come out of my head." Larry experienced in reality that his fantasy conception of his head as vulnerable to damage was not true. In reading Larry was offered books whose content dealt with feelings and relationships to others rather than fact information. In language arts stress was placed on looking at people, conversing, explaining about happenings at home and at school and using social manners (please, thank you, etc.). He was encouraged (if not forced at times) to use the telephone to find out the time, train arrivals, weather, and road conditions (these were taped responses) and later to call for information (eg: when does the department store close tonight) from human receivers. Larry also began to write some poetry about feelings and to display an interest in humor and jokes. He was grouped when possible with children in class, activities, and lunch who were interactive--Nathan, for example, a boy with too much emotional display. The other children were initially somewhat fascinated and curious about Larry, then frightened, then more concerned and helpful, and more recently expecting more from Larry. Newton and Larry have recently planned on visiting each other's homes. Larry was allowed to get gratification from his

mathematical wizardry in arithmetic class though he needed limits here. He can do long division problems within seconds.

Over the last several months greater focus has been placed on the development of perceptual-motor skills. Larry has had individual psychomotor training sessions with the physical education teacher. In addition to general experience in the use of and familiarity with his body, particular accent was given initially to fine motor skills of the hand. This eventually led to tying his shoes with the use of reinforcement rewards, and brushing techniques (stroking his hands with a soft bristle brush). Currently Larry is working on the perception of objects that move towards and away. His teacher has constructed a box with a viewing opening that contains 2 cars that can be placed in various positions in relation to each other. Larry and his teacher work together on these positions and directions. Recently they have practiced crossing the street and observing what objects are stationary, which ones are moving, are they coming closer or are they moving away. This sounds creative, fascinating and deceptively easy. It was not easy! Larry resisted in all kinds of ways and revealed upset feelings. The teacher used his own sensitivity to know when to reduce pressure, to desensitize and to be firm.

This fall Larry will return to a public school program and our staff expects to continue their contact with the school, Larry, and his family. At some time we will need to face an end point or to further reduce the intensity of our psychoeducational efforts.

This case illustrates the three hows of multi-dimensionality: conceptualizing, decision making and application. However, you will say, granted that this is an interesting and illustrative case, the Day Care Center has the resources and control over realities that many of us do not. Therefore one has to consider what can be translated and applied in general terms and in specifics to other educational and treatment settings that are less fortunate and that face large numbers of socially, educationally, and emotionally handicapped children.

First of all, the Day Care Center has to face its own realistic limitations in goals that can be reached with children even in intensive treatment and education programming. Therefore do we not have to face our limitations (also our assets) when remedial efforts are applied in settings with large numbers of children, lack of trained specialists, inflexibilities in systems, and services that are not interrelated? When one moves from an intensive integrated program to other programs with fewer resources, there is of course dilution. Secondly, fragmentation of services can occur when therapy and evaluation is provided in an office or clinic, tutoring with a teacher after school in another setting, and regular educational efforts with other teachers in school. Fragmentation can of course occur within one institution but it tends to increase as geographic separation of facilities exist. So, we have to accept realistic limitations without fatalism and we can try to avoid fragmentation of services through bringing them together geographically when feasible and through team communication when services are separated.

Despite the problems the application of a multi-dimensional approach--i.e. psychoeducational in our terms--offers potentials for more effec-

tive remediation of learning disabilities. The psychoeducational approach envisages that the environments of the child--school, home, church, institution, playground, and neighborhood--not just be holding facilities or points of neglect while psychotherapy, medication, training procedures, and educational measures are taking place. The various manifest disabilities of the child and their consequences need to be dealt with directly. We can build up as we remedy. Psychotherapy or counselling may make a child more receptive to learning new more adaptive and successful patterns of behavior. The training of ego skills can improve self-concept and in turn can facilitate psychotherapy. Medication which reduces anxiety or hyperactivity may make the child more responsive to environmental interventions. Family counseling can alter pessimism, frustration, and negative interactions with a handicapped child. Procedures and interventions have a positive interactive influence on each other. Stated negatively when areas are ignored or not interrelated they can interact negatively or become further sources of conflict.

How can one decide on the various services that may be needed in an individual case of learning disability? Hobbs offers a strategy for dealing with human problems in a variety of ways. He calls this an ecological approach which means an interacting system with the individual and as many elements in his environment as is relevant to the behavior under consideration. Various elements within the ecological unit can be considered possible places for intervention. Each element is also viewed as a subsystem having its subelements as well. With learning disabilities the various elements of the child's environment and his disabilities can be selected according to: 1) their major significance, 2) their

accessibility, 3) the availability of professional help, 4) the possibility for effecting change even where there is accessibility, 5) the factors of timing and priorities, and 6) the nature and extent of the symptoms and signs of maladaptive behavior. Evaluation and the strategy based on it are ongoing processes over time. They both may change as more information and experience become available and modifications in behavior develop. Therefore we say at this time this is our collective diagnostic picture and this is our approach. Evaluation and interventions then are operational at a given time. Therefore we need to periodically review and pool our knowledge about cases since the picture may be different and change. This is why once a month at the Day Care Center we intensively review cases to reaffirm or to modify our previous evaluation and program for a child.

How can various services for a child be integrated in settings such as private offices, schools, and clinics? Integration of the multi-dimension approach can take place at different levels and with various people who have contact with the child. A teacher who is working with a child on a reading program can instruct at the child's performance level but also be aware of reading content of motivational interest and deal with his feelings of anxiety and despair about reading. Ongoing communication among the various professionals who know the child can share information and experiences, pool ideas and develop new approaches together. Team meetings with parents is still another method of integrating one's efforts.

Let me enumerate only three principles and methods of the psychoeducational approach. We believe these in particular have applicability to other settings that deal with learning disabilities and behaviors associated with them.

One is structure, predictability, and clarity in the environment, particularly from professionals who have contact with the child. Handicapped children often experience their environment and themselves as disordered, changeable, and confusing. An ordered environment with structured tasks, consistency, simple clear directions, and predictable responses and events offers security and stability on which learning can take place. This is further facilitated when greater continuity of experiences at home and at school can be created.

Another related principle is effective management of behavior. Unless there are methods of management and of dealing with management failure, instruction and remediation cannot take place. Management is the means to an end not an end in itself. It of course interacts with effective instructional procedures. When these instructional procedures are inappropriate or lack motivational interest, then management problems arise.

A third principle is management of stimulation. Stimulation originates from the environment and from within the child and then becomes interactive between child and environment. We can alter stimulation inputs from objects in a room, seating placement in a class, group composition, adult behaviors, and events at home. Therapy, medication and the use of music can effect stimulation within a child.

There are many other issues which arise with children having learning disabilities: 1) dealing with success-failure experiences, 2) the student-teacher relationship which is often disordered by past experiences in school and current ones at home, 3) the nature of psychotherapy of the

child and his parents which facilitates adaptation and fosters development, 4) the correction and modification of biological handicaps if possible, 5) the initial exploitation of learning styles and emotional attitudes of a child to foster learning, 6) the selection of specific remedial training procedures in the areas of perception, motor experience, and cognition.

Summary

In this presentation I have stressed the need for a multi-dimensional approach to learning disabilities based on the accumulation of past and current knowledge and experience. This gives rise to three questions--how do we conceptualize multidimensionality, how do we make decisions on what approaches to use, and how do we apply multidimensionality. In order to deal with these theoretical and practical issues a systems approach has been suggested. Furthermore a multi-discipline staff needs to have the viewpoint of a generalist who can be interested in many phenomena and in different ways of approaching them. Experiences with a systems approach---identified as psychoeducational--at the Day Care Center have been described and illustrated. Applications and generalizations from these experiences and those of other workers have been suggested to other mental health and educational settings that deal with learning disabilities. However our understanding and methods are far from satisfactory, rather they are operational at this time. Practitioners and theoreticians need to observe, study, experience and evaluate. These should be the efforts of many professional disciplines communicating and working together who instead of being six blind men exploring the elephant can have open eyes and use a reflective cognitive style.